Application No.: 09/750,150
Request for Reconsideration dated: February 28, 2005
Reply to Office Action dated: November 26, 2004

REMARKS/ARGUMENTS

Claims 1-26 are pending in the application. Reconsideration in view the following remarks is respectfully requested.

Claims 1-26 are rejected under 35 U.S.C. §102(b) as being anticipated by Wang et al. ("Wang"), "Highly Accurate Data Value Prediction using Hybrid Predictors".

The Office Action asserts that the limitation "...determining a hit in a second table, *said second table to provide a prediction value*, said hit in the second table being determined according to a function of said instruction and said first table..." of claim 1 can be found in Figure 6 and Section 5.2 of Wang. It further states:

> However, Wang has in fact taught determining a hit in the second table (Page 288, Figure 6, PHT), *said second table to provide a prediction value* (Page 288, Figure 6), said hit in the second table being determined according to a function of said instruction and said first table (Page 288, Figure 6, The instruction will produce a final prediction from either the VHT or the PHT. When the VHT does not make a prediction then the prediction for the instruction comes from the PHT. The VHT provides values to index into the PHT. The hit, or prediction, from the second table, or PHT, is necessarily a function of the instruction and the first table as the values to index into the second table are provided from the first table.). *(emphasis added)*

> Section 5.2 of Wang states:

> The second hybrid predictor that we investigate combines a 2-level predictor and a stride-based predictor. Figure 6 shows the block diagram of this hybrid predictor. Compared to the VHT of the 2-level predictor, this hybrid predictor's VHT entry has two additional fields-State and Stride. This hybrid predictor works as follows. When a prediction is to be made for an instruction, the appropriate VHT entry is selected, and its Tag field checked as before. In parallel, the Value History Pattern and the State fields are read out for the 2-level predictor and the stride-based predictor. The 2-level predictor makes a prediction if the maximum count value in the selected PHT entry is greater than the specified threshold value. If the 2-level predictor makes a prediction, then that value is selected as the hybrid predictor's prediction. If the 2-level predictor does not make a prediction, then the value predicted (if any) by the stride-based predictor is selected".

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Applicants respectfully submit that the PHT disclosed in the Wang reference is not the equivalent of the "second table" as recited in independent claim 1. Contrary to the Office Action's assertion, Applicant respectfully submits that the PHT *does not provide* a *prediction value* as is specifically recited in the embodiment of claim 1, but rather is to determine *whether the 2-level predictor is to generate* a predictor value. Wang's description of Figure 6 specifically states: "The *2-level predictor* makes a prediction *if the maximum count value in the selected PHT entry is greater than the specified threshold value*. Therefore, in this case it is clear that the PHT is merely serving the function of a basic comparator that determines whether the 2-level comparator is to make a prediction. The Wang reference only teaches that upon this comparison made by the PHT, the *entire embodiment described, the "2-level predictor"*, makes a prediction. However, it *does not* disclose *the PHT itself* providing a prediction value as specifically described in the embodiment of independent claim 1.

Applicants further submit the cited references do not disclose "...determining a hit in a second table..." as recited in claim 1. The Office Action further states that the *PHT is the 2nd table where a hit is determined* according to a function of said instruction and said first table and the 2:1 MUX predicts a predicted value according to the "hit" and the "state" field. Applicants respectfully dissent. Again, the relevant section of Wang states: "[t]he 2-level predictor makes a prediction *if the maximum count value in the selected PHT entry is greater than the specified threshold value*". Applicants maintain that the PHT is merely serving the function of a basic comparator circuit that determines whether the 2-level comparator is to make a prediction. The comparison of two numbers

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in does not comprise a "hit" as disclosed in Applicants' invention. Support for this

limitation as used herein can be found at line 24 of page 5 of the specification:

> *Tables 122 and 124 are comprised of fields that store prediction values and other information to generate prediction value 128.* PIP table 122 may be indexed according to the IP of the instruction received from fetch unit 110. *A match result within the PIP table 122 provides a valid signal 126.* Valid signal 126 indicates that a prediction may be provided by multi-mode predictor 120. *Perferably, valid signal 126 is a "hit" signal that indicates a hit has occured in PIP table 122.* If no valid signal 126, then a miss has occurred, and no prediction will be provided by multi-mode predictor 120. *(emphasis added)*

According to an embodiment of the present invention, a match result within the

second table results in a "hit". It is clear the comparator PHT in Wang is incapable of

providing such a "hit" as defined by the present invention.

Since each and every element of independent claim 1 is not taught, suggested or

disclosed by the cited reference, the §102(b) rejection is lacking and should be

withdrawn. Independent claims 13, 19, and 24 contain substantively similar limitations

and therefore should be allowed as well. Claims 2-12, 14-18, 20-23 and 25-26 depend

from the aforementioned allowable independent claims, and therefore are in condition for

allowance as well.

For at least all the above reasons, the Applicants respectfully submit that this

application is in condition for allowance. A Notice of Allowance is earnestly solicited.
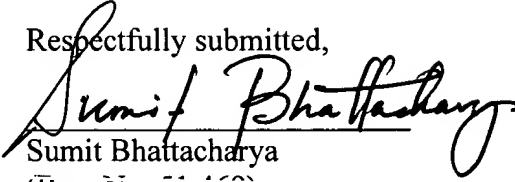
The Examiner is invited to contact the undersigned at (408) 975-7500 to discuss

any matter concerning this application. The Office is hereby authorized to charge any

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additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to Deposit

Account No. **11-0600**.

Respectfully submitted,

Dated: February 28, 2005   By: /Sumit Bhattacharya/

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